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From: Larry DeVilbiss, Director
Alaska Division of Agriculture
Alaska Department of Natural Resources

I am pleased to provide you with the report *The Agricultural Industry in Alaska: A Changing and Growing Industry – Identification of Issues and Challenges*, that follows up on our meeting of the Alaska Agricultural Industry Leadership Group on May 20, 2005 in Fairbanks at the University of Alaska.

As you will recall, the Group was formed to initiate a process to create an Agricultural Development Plan for the State. I serve as chair of the group with the assistance and support of Dr. Tony Nakazawa, Director of the University of Alaska Fairbanks (UAF) Cooperative Extension Service, and Dr. Carol Lewis, Dean of the UAF School of Natural Resources and Agricultural Sciences and Director of the Agriculture and Forestry Experiment Station.

The purpose of this report is to obtain an informed assessment of the present status of the industry, opportunities for growth, and constraints that impede growth from individuals who have an experience-based knowledge of the industry. This report is now presented to you.

The next steps will be to formulate strategies to address the issues and seize the opportunities for Alaska farmers, families and communities.

Thank you for your continued support.

Cc: Michael Menge, Commissioner, Alaska Department of Natural Resources
Craig Dorman, Vice President for Research, University of Alaska
Carol Lewis, Dean and Director, School of Natural Resources and Agricultural
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THE AGRICULTURAL INDUSTRY IN ALASKA: A Changing and Growing Industry –

Identification of Issues and Challenges

Prepared For:

Alaska Agricultural Industry Leadership Group

and

Department of Natural Resources

Division of Agriculture

Larry DeVilbiss, Director

May 2006

This report was prepared by the University of Alaska Fairbanks (UAF) Cooperative Extension Service with assistance from the UAF School of Natural Resources and Agricultural Sciences and Agricultural and Forestry Experiment Station and participation from the University of Alaska Office of the Vice President for Research.

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Appendix A: First Meeting Minutes

Appendix B: The Agricultural Industry in Alaska: A Ten-year Look

Appendix C: Aquaculture in Alaska

Appendix D: The 20th Century Transformation of U. S. Agriculture and Farm Policy

Appendix E: Three Models for Alaska's Agriculture Industry

Introduction

This report discusses changes that have occurred in the agricultural industry in Alaska during the last three decades. It provides an assessment of the present status of the industry, opportunities for growth, and constraints impeding growth; this assessment is drawn from informed individuals with an experience-based knowledge of the industry. Input from producers, processors, and agency and University of Alaska personnel has been obtained to discern the issues that must be addressed that concern the direction of the industry. Testimony has been gathered via statewide public audio-conferences last December 2005 and January 2006 to provide public perceptions of agriculture as it currently exists and its potential for the future.

The information provided in this report will help the federal government, the State of Alaska, and private investors and entrepreneurs anticipate how they might direct their support to expand the agricultural industry in Alaska. The report is designed to provide a framework for assessing known factors and identifying unknown factors so that new research can be undertaken that will lead to an agricultural development plan for the State. The framework is organized around the four industry sectors: horticulture, agronomy, animal agriculture and aquaculture. It includes sections that address the agricultural infrastructure of the State and data needs.

The next step will be to use this report to formulate strategies to provide new directions in agriculture in Alaska that are relevant to a realistic present and future vision for the industry as it develops in the 21st century.

Background and Context of Agriculture in Alaska Today

The traditional definition of agriculture is *the production of food and fiber*. This restrictive definition has broadened as agriculture has evolved and more emphasis has been placed on diversification, niche markets, regional markets, and value-added processing. Webster's Third New International Dictionary defines agriculture as "the science or art of the production of plants and animals useful to man and in varying degrees the preparation of these products for man's use and their disposal (as by marketing)." This definition is not restricted to food products or domesticated crops and animals and is indeed a very broad definition.

The agricultural industry that developed in Alaska in the late 19th and early 20th centuries grew out of necessity related to frontier expansion. During that period, expansion was encouraged throughout the United States and its territories by a positive federal policy that encouraged agricultural development. This policy extended to Alaska and included extensive soil surveys and the establishment of the Alaska Agricultural Experiment Station in the late 1800s. Numerous agricultural enterprises that processed products from farms in Alaska flourished during the period.

Alaska's agricultural industry stagnated in the 1950s when transportation into the Territory made it more efficient to import food products, both fresh and processed. By the time interest in agriculture in Alaska was renewed in the late 1970s, the United States was well into the post-industrial, non-expansionist period, and its policy did not favor increasing agricultural lands in production anywhere in the United States. As a result, virtually no federal support was available for expanding the agricultural industry in Alaska.

However, grass roots support for expansion of the agricultural industry in Alaska did begin anew in the 1970s. The State's economy was expanding because of increasing oil revenues. The non-indigenous component of the population had migrated from the

contiguous states where agriculture signified a solid economic base and epitomized the frontier spirit. However, at the decision-making level, there was little understanding of the industry. Certainly, nostalgia for the pastoral tradition existed, but the U.S. program of commodity-based agriculture that was being promoted was not recognized or understood as a low-margin, heavily subsidized industry that develops over a long period of time. During the period when plans were being developed for agricultural expansion in Alaska, U.S. commodity agriculture was enjoying record prices, and farmers were being encouraged (by the USDA) to plant “fence-row to fence-row”. The administration in Alaska in the mid-1970s and early 1980s provided support for expansion of this commodity-based agricultural industry in the form of land sales, loan programs, and partial infrastructure. Following administrations did not see the need to continue this level of support, particularly with the knowledge that commodity market prices were dropping.

In 1977-78, the Agricultural Action Council was created by the Alaska State Legislature to promote agricultural development in the State. The Alaska Agricultural Action Council, was subsequently dissolved in the later 1980s, provided ten-year plans that addressed Alaska’s potential as a traditional grain/red meat/dairy producer. This potential has not been realized at the scale considered by those Agricultural Action Council plans. Rather, the State’s agriculture is diversified, dominated by the greenhouse/landscaping and aquaculture sectors and family production operations whose products target the fresh market. Nonetheless, the Council’s reports provided a needed focus on the industry. Since that time, however, no effort has been made to look at comprehensive directions for the agricultural industry in Alaska.

While federal policy toward agriculture, simply speaking, tends to reflect the maturation and internationalization of an economy and the need for support during periods of change, State policy toward agriculture reflected a misunderstanding of the characteristics of a diversified industry and the need for long-term stability. Pearson and Lewis (1989) addressed this deficiency when they developed three models, based on historical data, for Alaska’s agricultural industry. The first model detailed projects that

were State-supported, such as the Delta Agricultural Project. The second described projects with a combination of State and federal (loan) support. The third depicted a model that was largely based on private sector initiative. Pearson and Lewis stated that the third model was the one most likely to succeed in Alaska.

Over the years, Alaska's agricultural industry has received support from a variety of federal and State programs. During the 1980s and 1990s, State support dominated; recently, private interest has increased – as Pearson and Lewis predicted (see Appendix E: Three Models of Alaska's Agriculture Industry).

The Changing Face of Agriculture in Alaska

Agriculture has never been a major factor in the territory's or State's economy. Nonetheless, it has been a stable industry that has provided Alaskans with fresh meat and produce. Today, Alaska agriculture probably supplies less than 5% of the State's food needs. All traditional agricultural products constitute less than 1% of the State's revenues from resources industries. Its processing infrastructure is under-utilized for red meat and milk, and is minimal for vegetables. The difficulty of wholesale market access, including infrastructure for bulk products within the State, further hinders producers.

In light of these challenges, the agricultural industry in Alaska – which reflects a diversified agriculture – recognizes the need for processing agricultural products and broadening its infrastructure. More than fourteen farmers' markets statewide are flourishing. Farm-gate receipts from greenhouse, landscape materials and bedding plant production have eclipsed receipts from all other traditional agricultural products and are exceeded only by receipts from the aquaculture industry.¹ Entrepreneurs are entering the marketplace with processed products and are also marketing on the internet. An interest has arisen in exploring nutraceutical and pharmaceutical applications of Alaska's wild-harvested and cultivated crops, based on new knowledge about the importance of elevated antioxidant levels. Salmon and shellfish aquaculture, with production values that dominate industry statistics, adds a unique aspect that distinguishes the industry from the industry in the lower 48 states.

Alaska's diverse agricultural industry has unique advantages. The State's isolation from other agricultural areas and its severe winters reduce the hazard of insect and disease infestation in crops. The cool temperatures and long days affect the sugar content of vegetables and enhance the color intensity of flowers. The climate may also contribute to increased levels of antioxidants in native and cultured plants. Moreover, Alaska's farmers can take advantage of the climate to supply non-traditional products that enhance the

¹ Refer to *Alaska Agricultural Statistics*, 2005.

environment. For example, soils disturbed by road construction, military operations, oil field development, and mining must, by federal and State law, be re-vegetated with plant species adapted to the area. Generally speaking, non-traditional products can be supplied most effectively by producers in the region in which they are used.

Another somewhat unique feature of Alaska's agricultural industry is the production of agricultural products that offer an efficient solution for the disposal of waste products. Municipal sewage and shell and finfish waste are used as soil amendments in agricultural operations, a desirable alternative to ocean dumping, incineration or shipping wastes out of Alaska. Shell and finfish wastes are also used as protein supplements in animal feeds. The cultivation of finfish in hatcheries for release in Alaska's lakes and coastal waters is as much a part of the agricultural industry in Alaska as is the shellfish cultivation of oysters and potentially geoduck and butter clams. In short, the Alaskan agricultural industry is exceptionally diverse, unique, and epitomizes the broad definition of the word *agriculture*.

The changing face of the industry needs to be reflected in the agricultural statistics currently reported by the USDA Alaska Agricultural Statistics Service in cooperation with the Alaska Division of Agriculture, the UAF Cooperative Extension Service, and the UAF Agricultural and Forestry Experiment Station. This is an important function that USDA performs in support of Alaska agriculture.

The changing face of agriculture in Alaska is reflected in new approaches to agriculture, led by the private sector. Certainly a place for state and federal support still exists, but it may not be along traditional lines of support for commodity crops or traditional dairy product production. Rather, Alaskans are working to take advantage of the agricultural industry's diversity and uniqueness.

Industry Opportunities and Constraints

In general, opportunities are defined by the market and constraints are most often a function of the industry – its limitations and its costs. For example, the success of greenhouse operators in producing plants and flowers has demonstrated the importance of both quality and efficiency of production. Consumers in Alaska will pay more for *Alaska Grown* if it is a quality product. Changes in customer profiles, needs, and purchasing power are the market dynamics within which opportunities for agricultural development in Alaska are created. Although there are two categories of customers – export and in-state – only the latter is presently creating opportunities for producers.

From a strategic perspective, the current dominant determinant of changes in market demand is the increasing costs of energy in the United States. As the effects of these cost increases on the production and demand for food and fiber become more evident, new opportunities and challenges will be created. Another determinant is the changing retail market, including population growth in the urban and some rural areas in Alaska.

On the supply side, energy-driven increases in production costs will impact the ability to supply new and changing markets with quality products at competitive prices. Other input challenges include: the aging of the agricultural workforce; the absence of new and younger entrants into the field; profits inadequate to stimulate new investment; increasing transportation costs; and especially for horticulture, the lack of a dependable seasonal workforce.

Adapting to change requires the capacity to draw on untapped resources, both financial and human. Alaska's agriculture producers have limited financial resources and, with a lack of new entrants into the industry, it appears that untapped human resources will be scarce. Perhaps the age and experience of Alaska's agricultural producers can overcome the absence of youth and energy. In either case, the success and survival of the Alaska agriculture industry will require an increase in producer collaboration and active government support.

Infrastructure Overview

Basic infrastructure in Alaska includes transportation, energy, and production and marketing, and is not fully developed.

Transportation

Transportation infrastructure supporting the agricultural areas of Alaska includes roads, railroads, water (ocean and river), and air transport. Transportation systems connect the larger population areas, but are not extensive in rural areas. Road systems serving existing agricultural areas are sufficient for local traffic and are tied into the road and rail system that connects the more populated areas of central and interior Alaska. However, some undeveloped areas of potential expansion, such as the Nenana-Totchaket and Delta West agricultural areas, are not presently connected.

Transportation services within the State developed in response to non-agricultural demands and do not provide services specifically designed to serve agricultural needs. Availability is limited and, when available, costs are often high. Farmers, therefore, often provide their own transportation services, including interstate (and international) trucking, load consolidation, and other services usually handled by a full service transportation sector in more developed agricultural areas in the U.S. and Canada.

Transportation services which are utilized in a minimal way, if at all, include barge (however, this option may emerge in the coming years due to economies of scale and lower cost), rail, and other bulk commodity transport. Currently, most agricultural commodities move by truck (private carrier). As fuel costs rise, other options may gain more interest and favor. Rail may also be extended closer to some agricultural areas in the coming years (notably from North Pole to Delta Junction), also making this transportation option more attractive.

Little transportation infrastructure in the way of loading and unloading facilities currently exists for agricultural commodities using any of the available modes of transport (rail and sea). For instance, fertilizer costs could probably be lowered by using barge traffic instead of rail/container ships and trucks if loading and unloading facilities were available.

Energy

Energy infrastructure consisting of electrical generation and distribution systems is available to many agricultural areas, but high costs can be a major factor in economic feasibility. Fossil fuels in the forms of gas, diesel, and heating oil are also available, but their cost is again a factor. Natural gas is available to some areas and may be a lower cost energy alternative in the future.

Production and Marketing

Production infrastructure necessary to the processing and storage of agriculture production is, in general, deficient. For some elements, such as grain, the production infrastructure is greater than current production warrants, while for other elements, such as some vegetable processing, it is virtually non-existent.

Alaska's agricultural industry suffers partly from its inability to effectively market agricultural products due to high transportation and energy costs, a lack of processing facilities for raw products, and a reliance on direct marketing – all leading to, or caused by, difficulty entering the traditional wholesale/retail market chain. The food wholesale/retail chain in Alaska has undergone major changes in the last decade, including the sale or closure of most Alaskan-owned supermarkets. Large retailers, including Safeway, Kroger, and Wal-Mart, are dominating the market. Direct marketing to these chains is difficult because they use their own distribution centers to supply products available throughout the year. Alaskan growers only supply seasonally.

Finding ways to address these fundamental weaknesses attributable to infrastructure problems will challenge Alaskans. Some producers are finding ways to enter the retail market other than through the supermarkets, but marketing is a substantial challenge for individual small producers. Even markets for feed and hay are affected by the influx of large retailers (in particular, Wal-Mart, which has a very wide selection of feeds for all types of animals). The relatively high price of hay in Alaska has provided trucking companies with a strong incentive to import cheaper hay from outside. Alaskan farmers need to study existing agricultural infrastructure to identify strengths, under-utilized capacity, and limited resources that could be enhanced and augmented by additional investment.

Sector Analysis — The Industry Today

The agricultural industry in Alaska has four major sectors. Horticulture provides the highest percentage of farm-gate receipts. The agronomic component utilizes the largest land area. The livestock component consists of a traditional and non-traditional mix of animals that provide high quality meat and milk for Alaskan consumers. Aquaculture, consisting of a 20+- year program of salmon ocean ranching and a developing shellfish farm program, generates the largest amount of income to Alaskans with an estimated value in 2004 of over \$21.8 million.

No food-producing industry can operate without an infrastructure (described in the overview section as well as in each of the four production sector sections). Research, education, and outreach are important components of the industry infrastructure that are provided by UAF through a variety of programs. The UAF Agricultural and Forestry Experiment Station's annual reports detail the research provided to the industry (www.uaf.edu/salrm/afes/). The statewide UAF Cooperative Extension Service, provides essential outreach for the broad agricultural community (www.uaf.edu/ces/). The University of Alaska Fairbanks Sea Grant and Marine Advisory Program provide research and development assistance for both salmon and shellfish aquaculture (www.uaf.edu/seagrant/).

The following sections outline the three traditional segments of Alaska's agricultural industry – horticulture, agronomy and animal agriculture – and also include the rapidly emerging aquaculture sector. Refer to Appendix C for an in-depth discussion of Alaska's aquaculture industry.

Horticulture

Horticulture, as a component of the Alaska agricultural industry, includes:

- Turf growers
- Vegetable producers (growers and processors)
- Greenhouse operators
- Landscaping, re-vegetation, and other non-food horticultural businesses

Opportunities and Constraints — Horticulture

Growth opportunities for turf growers include the developing residential trend in south central Alaska.

Growth opportunities for vegetable growers are most promising in the direct market sector and include farmers' markets, organic production, and community-supported agriculture. Wholesale opportunities to supermarket retailers are constrained by the seasonality of production, lack of added value processing, and increasing costs that prevent competitive pricing.

Growth opportunities for greenhouse operators are determined by the power of the corporate lawn and garden retailers such as Fred Meyer, Home Depot, and Wal-Mart. Market growth in this sector will depend on increasing consumer demand of a growing population with discretionary income to spend and the producer's ability to break into a corporate market and compete (or cooperate) with box stores to offer a better quality product. Constraints on growth in this sector include increasing scarcity of dependable seasonal labor, increasing transportation and energy costs, and price competition from out-of-state growers.

Non-food horticulturists include golf course operators and lawn, landscaping, and re-vegetation businesses. Growth opportunities in these sectors are determined by factors

outside of traditional agriculture. They are driven more by macro economic conditions that affect discretionary spending. For example, demand for lawn and landscaping services is tied to the housing market which is currently expanding. Constraints include all of the cost factors relevant to the other sectors.

Re-vegetation has been limited by the lack or scarcity of native plants. There is also a need for a market mechanism to coordinate the demand and availability of native seed that is being produced. One of the biggest opportunities for growth in the use of native grass seed and plants is through the Alaska Department of Transportation. In other states, governmental agencies are buying and stockpiling seed for future products, thus helping those industries to grow and stabilize.

Production possibilities that could be developed concurrent with market research and development include:

- Growth and use of native plants for landscaping, ornamental, and re-vegetation markets based on their enhanced survival rates
- Berry production for greenhouses/pick-your-own operations
- Tree fruit production for pick-your-own operations

Opportunities for horticultural development, expressed in terms of producer needs (that is, factors that growers need to be successful), include:

- Knowledge of markets
- Marketing skills
- A marketing infrastructure that includes processing and storage facilities
- Political and governmental support
- Business management skills
- Technical knowledge that supports efficient production
- Access to capital
- Industry collaboration such as producer and marketing cooperatives
- Broader market recognition of *Alaska Grown* as a premium product

Constraints on horticultural development include:

- Limitations on availability of dependable seasonal labor
- High and increasing transportation costs
- High and increasing energy costs
- Climate and weather factors that limit growing seasons
- Real estate taxes
- High input costs for land, labor, equipment and supplies
- Lack of storage and processing facilities
- Limited markets in Alaska due to small population
- Threats to crop productivity due to invasive species, pests, and diseases
- Profits insufficient to attract new entrants or support new investments

Infrastructure — Horticulture

Production and marketing infrastructure for vegetables:

Two fresh-cut processors, Alaska Carrot Company and Dito's, currently operate in Anchorage. Dito's formerly operated as Alaska Fresh-Cut Inc. but was recently bought by DiTomaso, an Anchorage-based produce wholesale business. Most of the vegetables that are processed into fresh-cut salads and other products for sale in Alaska supermarkets are supplied by California farmers, however.

Several new vegetable wholesale companies have started in the last few years, often supplying high quality organic and/or pesticide-free produce to restaurants. In addition, farmers' markets have been growing and expanding in most areas of the State, thereby increasing direct marketing opportunities for Alaskan producers. In general, marketing of Alaskan produce has expanded into direct markets, not wholesale.

The Mat-Su Farm Bureau, in collaboration with the Alaska Division of Agriculture, has completed a feasibility study to open a vegetable processing plant in the Mat-Su to process potatoes, peas, rhubarb, and other vegetables in concert with a Mat-Su Borough

School District kitchen. This effort is to support local farmers who wish to expand production and to provide local produce in school district cafeterias and to serve other local markets.

VanderWeele Farms has the capability to process carrots.

One other manufacturer of note is the Alaska Chip Company, which produces potato chips in Anchorage.

The wholesale and processing industry for vegetables is a sector served by a limited infrastructure. Alaskans' ability to produce vegetables is well known, but their production is limited by reliance on seasonal and direct markets. Lack of access to the dominant wholesale and major retail markets is another obstacle for many farmers and is often due to requirements tied into the major food retail markets in Alaska which require a certain level of processing.

Public Testimony — Horticulture

Needs include:

- Marketing assistance for small growers
- Improved marketing for agronomy and horticulture
- Marketing cooperatives
- Unlimited market for direct marketers
- Processing, handling, and storage facilities for new crops
- Research for and expansion of berry production
- Proposed agriculture processing center in Palmer
- Verification of farmers' market production data
- State support of farmers' markets
- State grants to produce organic fertilizer
- Subsidies for cheap sources of organic fertilizer

- Production support for cheap, fish fertilizer in Alaska
- Utilization of fish waste resources to build soils
- Assistance in obtaining organic certification
- Research assistance in expanding growing season through high/low tunnels
- Inclusion of incentives in 2007 farm bill for organic production
- Mini-grants for producers to attend national conferences and to bring speakers to Alaska
- More localized experiments/trials on which vegetables work best in Alaska

Other comments include:

- Alaskan grown products - *Alaska Grown* is a good logo – think about a brand – could a marketing firm be hired to help develop a brand?
- The Agricultural and Forestry Experiment Station is marketing a variety of products and will be developing a brand for them – similar to Cougar Gold Cheese at Washington State University. The radio and TV ads are good but they aren't aggressive – where do we get these products?
- Highlight farmers' markets – what will it take to make growers cognizant of market needs?
- Farmers' markets are a bright spot and growing.
- Small-scale agriculture is the solution.

Agronomy

Agronomy, as a component of the Alaskan agricultural industry, includes:

- Feed grains (barley, oats, and wheat)
- Forages
- Potatoes
- Food grains
- Seed and re-vegetation services

Opportunities and Constraints — Agronomy

In terms of production volumes and value, agronomy in Alaska consists predominantly of feed grain, hay, and potato production, with oilseed production a developing product.

Opportunities for growth or sustainability for the feed grain sector are tied to opportunities for growth in livestock production, which is addressed in a following section. That is, feed grains are grown to supply the needs of livestock producers in the State. Limitations inhibiting the profitability of livestock production in the State directly limit opportunities for growth in feed grain production. One of the biggest limitations to profitability of livestock production is the current pricing structure of feed grains.

The Alaska hay market is directly dependent on the demand from recreational horse owners, not from the livestock industry as it is elsewhere. This demand for quality horse hay appears to be growing, and has further increased the cost of raising livestock in Alaska.

Potato production supplies in-state consumer demand through retail outlets and the military. There may be potential for an export market of seed potatoes, although problems associated with the recent blight disease may impact this opportunity.

Constraints on increasing production in the agronomy sector of Alaska agriculture include:

- Limited consumer demand for some products
- Limited access to wholesale and retail markets by Alaska growers
- Limited livestock feed demand due to constraints on the growth of the livestock sector of the industry
- Profits insufficient to attract new entrants or support new investments

Infrastructure — Agronomy

Grain elevators:

At this time, at least four facilities in the State can function as elevators. These include the Alaska Farmers Cooperative Elevator in Delta Junction, the (former) Montana Grain Growers Elevator currently divided and owned by two local Delta Junction farmers, the Palmer Matanuska Maid Elevator, and the Valdez Port Elevator. In addition to these facilities, private feed manufacturers may have the ability to perform some elevator functions as well.

Appropriate licensing enables farmers to use grain stored in elevators as collateral for loans. It has also enabled elevator and producer customers to take advantage of many U.S. government programs that have helped stabilize both the price and supply of feed and food grains in the U.S. since the 1930s. While several of these Alaska elevators may have held this license in the past, and now provide some services in the form of the physical handling and treatment of grain, none currently hold a registered warehouse license.

Recently, the Farm Services Agency has been able to offer LDPs (Loan Deficiency Payments) and MALs (Marketing Assistance Loans) without a licensed elevator in Alaska. This service has mitigated somewhat the lack of licensure, but still does not allow the commodity grain market in Alaska to function as it does elsewhere.

The Alaska Farmers Cooperative Elevator and Fertilizer Plant is located in Delta Junction. The 500,000 bushel grain storage and drying complex and the fertilizer plant were constructed with a loan from the State of Alaska. The facility was foreclosed in 1985 when grain production fell dramatically. The facilities were leased back to the Alaska Farmers Cooperative, Inc. by the State. Current grain production in Alaska is about 4,200 acres (yielding 50-60 bu/acre). The capacity of the elevator is much larger than the storage needed for grain crops currently grown in the State. The fertilizer plant provides fertilizer storage and marketing services for most farmers north of the Alaska Range.

The Montana Grain Growers (former) facility contains grain-drying capacity as well as a conservatively estimated 400,000 bushels of flat storage, plus another 62,000 bushels of hopper bin capacity. The flat storage is owned by one private party, and the dryer and hopper bins by another. The truck scale was salvaged by a gravel-hauling contractor about ten years ago. Except for the fertilizer plant, this elevator essentially doubles the grain handling and storage capacity of the Farmers Cooperative elevator. It was originally built to serve as a country elevator to serve the Port Elevator at Valdez, discussed below.

The Valdez Port Elevator was built in the mid-1980s by the City of Valdez. Its ownership is currently with the Port of Valdez. This elevator is truly monumental, constructed of reinforced concrete with approximately a 50% safety factor for grain. It is a true port elevator; however, under current conditions, it cannot either load or unload barges or ships. According to its project engineer, it would take approximately \$500,000 worth of dredging to allow barges close enough to load. Transportation costs would be approximately \$35 per ton from Delta Junction to Valdez. Unfortunately, this elevator has never been used and probably will not be used in the foreseeable future for grain export or import. It does remain a very visible and substantial elevator, despite being twenty years old.

The Palmer elevator belongs to the Matanuska Maid Creamery Corporation, which is a State corporation. The elevator has been closed for at least twenty years. It does have

some storage capability as well as rail access. It served local Mat Valley milk and meat producers. At this time, it is not serving as an elevator and its status and condition are unknown. It resembles elevators in small towns in Canada and the U.S. which are generally not used as commercial elevator facilities since the advent of on-farm storage.

The grain elevator sector in Alaska is clearly operating below its capacity for storage and other functions. Feed buyers and sellers in Alaska are not able to take advantage of some subsidies available to other U.S. farmers; thus, Alaskan farmers are at a disadvantage in part because the elevator sector lacks the appropriate license.

Feed processors:

Two feed processors are located in Alaska, Alaska Garden and Pet Supply Inc., and Dennis Green and Sons. These two feed processors are located in distinctly different parts of the State, yet both serve statewide markets. Because Alaska has no state feed labeling law, feed produced by Alaska feed processors may not carry a feed label. This can put some Alaska manufactured feed at a disadvantage in the retail market that includes large box stores such as Sam's Club, Wal-Mart, and Costco.

Alaska Garden and Pet Supply Inc. manufactures feed for a broad array of customers in Alaska. It employs the services of a nutritionist, and can custom blend and manufacture feed to the customer's specifications. The company markets statewide to many animal producers, both complete rations as well as feed ingredients for others to mix with their own farm-produced ingredients. In addition to feed, Alaska Garden and Pet Supply Inc. blends and sells fertilizer for most farmers south of the Alaska Range. This feed manufacturer buys feed ingredients both in Alaska and from outside.

Dennis Green and Sons manufactures feed in a pellet form from a mix of ground brome hay and barley that is grown mainly on their farm in Delta Junction. Additional ingredients may be substituted as available, such as canola, wheat, or other feed ingredients which may be produced in Alaska or imported from Canada or outside. Custom blending is not available.

Additional feed is mixed and produced by farmers using grinder/mixers or other feed mills, usually for their own use or for relatively small direct sales, often to neighbors.

Public Testimony — Agronomy

Needs include:

- Enforcement of regulations against importation of noxious weeds
- Labeling law for potatoes
- Research on oil crops, i.e. canola
- Research on bio-fuel opportunities in Alaska
- Barley and willows as potential sources of biomass and cellulose
- Hay seller/buyer (middleman?) to facilitate cooperative marketing
- Regulations for quality of horse feed
- Weed-free straw
- Requirement to use weed-free straw by dog mushers and pack horses
- More research in soil science to improve poor soils at Pt. McKenzie
- More research in raising right forages
- Forage specialist
- Grains, seeds, and herbs for human consumption
- Improved marketing for agronomy and horticulture

Other comments include:

- Add bio-energy and straw to agronomy section/list
- Can native seed be harvested on public land?
- Are there markets for human consumption of grains?

Animal Agriculture

Livestock, as a component of the Alaska agricultural industry, includes:

- Reindeer
- Poultry
- Beef
- Dairy
- Sheep and goats
- Swine
- Elk and bison
- Musk ox

Reindeer: The Alaska reindeer industry serves a local market consisting of the communities located in western Alaska and some of the Aleutian Islands adjacent to the areas of production. Market opportunities are limited because there is no USDA-licensed slaughter facility that would permit the sale of meat products in regulated markets. Reindeer herds are declining because of interaction with migrating caribou.

Beef: The demand for Alaska-produced beef is greater than the supply. A marketing and processing infrastructure is lacking that could provide processing and distribution functions. Therefore, the majority of beef produced for food products in Alaska are direct-marketed and sold as whole animals. Generally, beef production facilities and techniques are not as highly developed as those located outside of Alaska. For example, the adoption rate of artificial insemination for breeding cattle in Alaska is very low and the continued reliance on natural service bulls has caused added stress to the industry since the closure of the Alaska-Canada border to movement of ruminant animals by the USDA in 2003.

Dairy: Milk production in Alaska is unique due to high inputs (costs) and the lack of processing and marketing capacity, including an approved slaughter facility to dispose of milk cows or a market for bulls. The economics of this segment of the agricultural

industry has been described in an April 2005 study by E. Bruce Godfrey, produced for the Alaska Division of Agriculture titled, *Milk Production in Alaska*. As in the beef industry, the Alaska dairy industry lags behind dairy production in other locations in the areas of facilities and technology adoption. As with beef, the relatively low level of artificial insemination has resulted in industry stress associated with the lack of incoming breeding stock since the border closure.

Elk and Bison: Elk and bison are produced in small numbers for meat production in the State. A secondary, very small market for elk and bison is to provide opportunities for guided hunts.

Other livestock production: Production of other livestock in Alaska, including poultry, musk ox, sheep, goats, swine, and yak is minimal.

Opportunities and Constraints — Animal Agriculture

Opportunities for animal agriculture include:

- Value-added marketing
- Alternative livestock

Four major constraints to maintaining or increasing production of livestock in Alaska are:

- Lack of a marketing infrastructure
- Lack of USDA-approved processing facilities
- High cost of feed (including grain and hay)
- Limited access to grazing leases for traditional livestock.

Broader and updated statistics regarding animal agriculture are needed. Currently, agricultural statistics do not provide details on the diversified livestock that are being produced in the State. For example, meat is being sold; antler is being sold. What else is being sold – breeding stock, show stock? How many farms are there other than reindeer?

How many animals are there other than reindeer? Data are also needed for activity on Dutch Harbor.

Infrastructure — Animal Agriculture

Meat processing plants and slaughter facilities:

There are a number of meat-processing and slaughter facilities in Alaska. There are five USDA-approved slaughterhouses located in Delta Junction, North Pole, Kodiak, Palmer and Umnak Island. Non-USDA-approved facilities exist, also. Mt. McKinley Meat and Sausage, owned by the State of Alaska, is currently being transitioned into the private sector. The implications of this transition on the Kenai Peninsula and Copper Center remain to be determined.

Delta Meat and Sausage is a private slaughterhouse in Delta Junction. It is a USDA-approved slaughterhouse. Delta Meat and Sausage provides custom slaughtering for individuals and purchases beef and pork that is then packaged for their retail meat business. Much of the meat that is processed here comes from the owners' farm.

B-Y Farms operates a slaughterhouse and processing plant in North Pole. It is a USDA-approved facility that purchases a large variety of animals that are slaughtered and then packaged for the retail market; the facility also provides custom slaughtering.

Umnak Island is the site for the Bering Pacific Ranches (BPR), Ltd. slaughter facility (based in Alberta, Canada). The facility serves to slaughter BPR's cattle and also a small number of reindeer. The animals are boned out, boxed, and shipped to Seattle for further processing.

Kodiak Island is home to the Kodiak Smoking and Processing business, owned and operated by a small cooperative. Slaughter is performed once or twice each year, with a USDA inspector traveling to Kodiak for inspections.

Other non-USDA-approved facilities for processing meat exist in the State. Some provide custom slaughter and cut-and-wrap for farm animal producers; others rely on wild game to a large extent for their business (as do some of the USDA-inspected plants). The USDA approval is needed for retail meat sales and, thus, the loss of the Palmer facility will have a large impact on those who depend on its services. Access to other plants by current customers of Mt. McKinley will certainly affect the ability of some farmers to stay in the business of meat production.

Milk Processing: Two milk-processing plants currently operate in the State. The Northern Lights Dairy in Delta Junction processes milk from its own herd of cows and purchases additional supplies from two other producers. In addition to Delta Junction-produced milk, it also buys milk produced in the Mat-Su from the Matanuska Maid Creamery in Anchorage.

The Matanuska Maid (Mat Maid) Creamery in Anchorage is a State asset, leased to the Matanuska Maid Creamery Corporation. Mat Maid processes and markets milk from the dairies in the Mat-Su valley, as well as milk purchased from Washington State. Mat Maid markets its milk mainly in the retail markets throughout Alaska. Northern Lights Dairy sells its milk and other products mainly in the Interior.

Small dairy producers may operate in the State, supplying neighbors with raw milk. These producers are operating outside of the current dairy regulatory regime in Alaska. For example, one small producer in the Palmer area is producing cheese curds. Moreover, the largest milk processor in the State is buying milk from outside Alaska; this fact points to an inadequate supply of locally produced milk.

Public Testimony — Animal Agriculture

Needs include:

- To know number of horses in Alaska
- Economic impact of horse demand for forages grown

- Source of organic feed for organic livestock
- A kill floor on the Kenai Peninsula
- Subsidies for Mt. McKinley
- Testing programs for livestock
- Quarantine facility for livestock at point of entry into Alaska
- More direct marketing, thereby eliminating distributing, transportation and processing costs

Comments include:

- No increase in price of milk to producers in 20 years.
- Bureaucracy will not help producers.
- Fuel costs are increasing with no increase in income.
- Dairy industry not feasible at current economic conditions.
- Dairy industry will suffer from closing of Mt. McKinley Meat and Sausage.
- The opportunity for \$25 million in federal assistance to the dairy industry was squandered.
- Need to investigate the idea of offering mobile slaughter units.
- Need to investigate the idea of having a small slaughter and processing plant.
- State vet is too busy to start an animal ID program.
- Land clearing is a problem for goat producers.
- Keep Mt. McKinley within Division of Agriculture.
- High feed costs are a constraint to livestock production.
- Promote more grass-fed animals in Alaska.
- Include incentives for organic fertilizer in 2007 farm bill.
- A market for goat milk and cheese is viable.
- Encourage the development of a dairy goat industry.
- State should differentiate between micro-dairies (fewer than 9 milking goats) and large-scale dairies by providing different regulations regarding Pasteurized Milk Ordinance.

- Provide exemption from the Pasteurized Milk Ordinance for farms with fewer than 9 milking goats.
- Allow the use of home pasteurizing systems with appropriate instrumentation in place of commercial pasteurizing machines.
- Require and provide training in sanitary milk-handling practices.
- Offer cheese-making classes to those dairy producers who would like to expand their product lines.

Aquaculture²

Three types of aquaculture are permitted by the State of Alaska under laws passed by the legislature and regulations promulgated by State agencies. Aquaculture, as a component of the Alaska agricultural industry, includes:

- Salmon ranching
- Shellfish mariculture
- Seaweed mariculture

Opportunities and Constraints — Aquaculture

While Alaska has good opportunities to take advantage of the increase in demand for seafood by providing fish and shellfish from both its commercial common property fisheries and its shellfish and salmon aquaculture industries, several factors must be considered.

Salmon ranching: The production inputs to the Alaska Salmon Enhancement Program are limited by state regulations. Increasing output production will be dependent on increasing the survival rates at presently authorized incubation volumes. This will require expanded research initiatives to increase efficiency and productivity.

Note: Alaska statutes prohibit finfish farming in State waters. Salmon are not affected by this regulation because they are ranched – not farmed – and there are statutes specifically proscribing the conduct of salmon aquaculture. This government policy reflects the concerns of fishermen, communities, and seafood processors about the potential harm to the seafood industry from market competition, site conflicts, and environmental damage from fish farming enterprises.

² Refer to Appendix C for an in-depth discussion on Alaska aquaculture.

Shellfish mariculture: The most challenging problems facing the Alaskan shellfish farming industry are restrictive government regulation and a lack of production. Currently, Alaskan farmers sell every oyster to niche markets, but to attract and sustain larger lucrative markets requires an enormous increase in production.

Opportunities for increasing shellfish production include the need to:

- Secure the economic viability of the Alutiiq Pride Shellfish Hatchery
- Expand shellfish production to species other than Pacific oysters
- Develop aquaculture training and technology transfer programs designed to help improve profitability of existing and new farms
- Develop techniques to improve shellfish quality and safety
- Continue marketing research and market development
- Improve efficiency and cost-effectiveness of shellfish farming
- Continue the process of regulatory reform to attract interest in and investment in shellfish farming
- Develop infrastructure to aid in industry expansion

Constraints include:

- A restrictive regulatory climate
- High cost of doing business in rural areas of Alaska
- A lack of investment capital
- Limited government support in research and development and training

Infrastructure — Aquaculture

Alaskan aquaculture is part of the long-established Alaska Seafood Industry and benefits from the infrastructure that has enabled Alaska to become one of the top-producing seafood areas of the world.

Public Testimony — Aquaculture

Needs include:

- To pursue developing opportunities in aquaculture, including salmon ranching, shell fish mariculture, king crab enhancement.
- Need to use lakes for production of low-fat fish.

Comments include:

- State regulations prohibit freshwater finfish production.
- Blue- green algae is an opportunity.

Public Testimony — General

The preceding public comments are related to the respective sectors under discussion; however, several comments could not easily fit into a specific category and, thus, are presented separately below.

Needs include:

- Better notification of Agriculture meetings and activities
- More education in agriculture
- K – 12 education in agriculture
- Training and financial assistance to young people to enter industry
- Education on community sustainability
- More cooperative/collaborative marketing
- Larger scale production markets need to be identified
- Division of Agriculture Marketing program needs to be upgraded
- Division of Agriculture needs to integrate certification with marketing to enhance production, quality, and sales
- Better data on what is produced and sold
- Marketing program in Division of Agriculture needs to be upgraded
- Full-time marketer for Division of Agriculture
- Food retail and wholesale markets need to be expanded
- Fuel credits
- More private industry; Alaska producers need to increase use of federal subsidy programs to put them on a parity with subsidized producers in the south 48
- Better production data so State can make better investment decisions
- Reorganization of Division of Agriculture to meet changing needs
- Issue-specific advisory boards
- Renewal of grazing leases on State lands
- Grower-based research specific to Alaska environment
- Cost-of-living adjustments in next farm bill for Farm Service Agency

- Assistance dealing with new Safeway I Trade system of purchasing
- More soil-building and composting for organic growers using fish waste
- Use of waste heat to accelerate growing
- Clearing-house for land-clearing equipment
- Change from Mega projects to homestead scale (160 acre) projects
- Land-clearing credits
- Grants for labeling

Comments include:

- Alaska's pristine environment and quality of organic production offers best potential for marketing.
- Division of Agriculture, University of Alaska, and Department of Education should partner to provide agriculture education to Alaska youth
- The State should partner with the federal government to make more federal government subsidy programs available to Alaska producers.
- More state funding should be required as matches to obtain federal assistance.
- Encourage small producers.
- More agriculture products should be purchased by the State.
- A homestead/farmstead program should be enacted by the State.
- Lack of infrastructure.
- Lack of willing, low-wage workforce.
- Labor is fine.
- High price of fuel
- Too great a reliance on government-supported agriculture.
- Import less and consume more local produce.
- Why do State government agencies not buy more Alaska-produced food?
- Producers are unreliable sources of data.
- Noxious weeds are a problem.
- Lack of desire by industry for service on Board of Agriculture and Conservation.
- Availability of land and financing to purchase land is a constraint.

- Too much agricultural land is being lost.
- Remote farms do not work.
- Opportunities for young people to enter industry are limited by availability of land.
- Loss of farm land to non-agricultural uses, such as residential subdivisions, needs to be limited.
- Matching funds required by Natural Resources Conservation Service land protection program should be provided by the State.
- More state land auctions should be located closer to population centers.
- More remote farms are not the answer.
- Agriculture land base is too limited.

Appendices (to be provided under separate cover)

Appendix A: First Meeting Minutes

Appendix B: The Agriculture Industry in Alaska: A Ten-Year Look

Appendix C: Aquaculture in Alaska

Appendix D: The 20th Century Transformation of U. S. Agriculture and Farm Policy

Appendix E: Three Models for Alaska's Agricultural Industry